# Project Scope Statement

Project Name: AI-Powered Vocabulary Learning Chrome Extension

Objective: Develop a browser plugin leveraging AI to help students efficiently learn vocabulary through contextual text analysis, personalized recommendations, and cross-device synchronization.

## Key Deliverables

• Functional Chrome extension with AI-driven features (e.g., word marking, example generation, spaced repetition).

• Robust backend infrastructure (AWS Lambda, OpenAI API integration).

• Cross-device sync and conflict resolution mechanisms.

• User documentation and deployment package.

## Boundaries

In-scope: Browser-based functionality (Chrome), AI integration, offline storage, user testing.

Out-of-scope: Mobile app development, multi-language support beyond initial scope, enterprise-level scalability.

## Scope Description

### AI Service System

• Technical Validation: Test OpenAI API feasibility, deploy AWS Lambda services.

• Feature Integration: Contextual learning questions, personalized recommendations, dynamic scheduling.

• Optimization: Performance tuning for AI models and backend services.

### User Interaction System

• Core Features: Text highlighting, vocabulary management UI, daily reminders.

• Design: Figma prototypes for word marking, editing, and AI-generated content display.

### Data Storage & Sync

• Local Storage: IndexedDB for offline access and fast retrieval.

• Cloud Sync: AWS-based sync with conflict detection/resolution.

### Performance & Release

• Testing: Cross-browser compatibility, load testing.

• Packaging: Chrome extension deployment package and installation guides.

## Scope Management Approach

### Change Control

• All scope changes require approval via a Change Request Form reviewed by the PM and tech lead.

• Impact analysis on timeline, cost, and dependencies.

### Scope Baseline

• Track progress against milestones using Trello/Jira with user stories and tasks.

### Stakeholder Communication

• Weekly sprint reviews and backlog refinement sessions.

• Use Notion for centralized documentation (requirements, technical reports).

## Deliverables & Milestones

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| Milestone | Date Range | Deliverables |
| Requirements & Prototype | 3/5 – 3/19 | User research report, Figma prototypes, technical feasibility report. |
| Core Features Launch | 3/5 – 3/19 | MVP with word marking, AI-generated examples, IndexedDB storage. |
| MVP Implementation | 3/19 – 4/2 | AI recommendation algorithms, cross-device sync (basic), performance optimization. |
| Product Release | 4/2 – 4/16 | Chrome extension package, user docs, conflict resolution UI. |

## Risk Management

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| Risk | Impact | Mitigation Strategy |
| AI Technical Feasibility | High | Early API testing (Postman), fallback to alternative NLP models. |
| Data Sync Conflicts | Medium | Implement version control and manual conflict resolution UI. |
| Performance Bottlenecks | High | Load testing on AWS Lambda, optimize JavaScript code and caching. |
| User Adoption | Medium | Beta testing with students, iterate based on feedback. |